

# Notice of Allowability

Application No.

09/973,783

Examiner

Joshua Joo

Applicant(s)

BUNN ET AL.

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/5/2007.

2. ☒ The allowed claim(s) is/are 1-11.

NATHAN FLYNN  
SUPERVISORY PATENT EXAMINER

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some\* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_

4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 5.

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other \_\_\_\_\_.

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***Examiner's Amendment***

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given by Attorney Glenn J. Perry No. 28,458 on May 1, 2007.

**Examiner's Note**

3. For the amendment filed 3/5/2007, the status identifier for claim 10 was improper as the claim was amended, and the claim identifier recited, "Previously Presented". Roneshia Stoutamire has advised on May 3, 2007 that claim 10 was amended, and the claim identifier is incorrect, which should have read "Currently Amended". Therefore, claim 10 is considered as "Currently Amended" in the amendment of 3/5/2007.

**Reason for Allowance**

4. The following is a statement of reasons for the indication of allowable subject matter:  
  
Prior art of record teaches of identifying a plurality of frequently occurring data strings transmitted by a sender, building a compression dictionary based on the frequently occurring data strings, and transmitting the compression dictionary to the receiver. Prior art of record also teaches of identifying a plurality of frequently occurring objects stored at a cache, wherein the objects are supplied by various storage facilities, and building a compression table. The compression table may be sent to receivers or a host.

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However, prior of record does not specifically teach of identifying a plurality of frequently occurring data strings transmitted by a plurality of cable modems in the DOCSIS network; assigning a token to represent each of the plurality of frequently occurring data strings; entering each of the plurality of frequently occurring data strings and each token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce a data compression dictionary; and transmitting the data compression dictionary to each of the plurality of cable modems in the DOCSIS network during initialization of said each of the plurality of cable modems.

5. The application has been amended as follows:

#### Claims

1. (Currently Amended) A method for generating a data compression dictionary and utilizing ~~[[it]]~~the data compression dictionary to enhance communication efficiency in a DOCSIS compliant network, comprising the steps of:

- i. identifying a plurality of frequently occurring data strings transmitted by a plurality of cable modems in the DOCSIS compliant network;
- ii. assigning a token to represent each of the plurality of frequently occurring data strings;
- iii. entering each of the plurality of frequently occurring data strings and each token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce a data compression dictionary; and
- iv. transmitting the data compression dictionary to each of the plurality of cable modems in the DOCSIS compliant network during initialization of said each of the plurality of cable modems.

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2. (Previously Presented) The method of claim 1, further comprising repeating steps i.-iv. for each of a plurality of DOCSIS networks, thereby generating a plurality of data compression dictionaries, each of which is individually tuned for a corresponding one of the plurality of DOCSIS networks.

3. (Currently Amended) A method of transmitting compressed data packets in a DOCSIS network, comprising the steps of:

- i. receiving by a cable modem a plurality of data packets for transmission from a user device, wherein each of said data packets has a payload portion comprised of one or more data strings;
- ii. identifying by the cable modem which of said data packets has a payload portion that can be compressed;
- iii. for each of said data packets identified in said step (b), replacing each of said one or more data strings contained in said payload portion with a token from a data compression dictionary assigned to represent said one or more data strings, wherein said data compression dictionary is tuned to data transmitted by a plurality of cable modems on the DOCSIS network by identifying a plurality of frequently occurring data strings transmitted by the plurality of cable modems, and entering each one of the plurality of frequently occurring data strings and a token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce the data compression dictionary;
- iv. appending a compression indicator to each of said tokens within each of said data packets; and
- v. transmitting said data packets within a DOCSIS service identifier; and
- vi. transmitting said data dictionary to each of the plurality of the cable modem on the DOCSIS network when each ~~said~~ of the plurality of the cable modem is initialized.

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4. (Original) The method of claim 3 wherein the token is a binary string.

5. (Original) The method of claim 4 wherein the compression indicator indicates the length of the binary string.

6. (Original) The method of claim 3 wherein said data compression dictionary is pre-defined and fixed.

7. (Currently Amended) A method for expanding a PDU data string transmitted over a DOCSIS network, comprising the steps of:

i. receiving a plurality of data packets transmitted within a DOCSIS service identifier, wherein each of said data packets has a payload portion;

ii. identifying each of said plurality of data packets having a compression indicator appended to one or more tokens within said payload portion; and

iii. for each of said packets identified in said step (b), replacing each of said one or more tokens contained with said payload portion with a data string assigned to represent said one or more tokens found in a data compression dictionary, wherein said data compression dictionary is tuned to data transmitted by a plurality of cable modems on the DOCSIS network by identifying a plurality of frequently occurring data strings transmitted by the plurality of cable modems, and entering each one of the plurality of frequently occurring data strings and a token assigned to represent each one of the plurality of frequently occurring data strings into a lookup table to produce the data compression dictionary, and said data compression dictionary downloaded to each of the plurality of the cable modem on the DOCSIS network when [[it]] each of the plurality of the cable modem is initialized.

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8. (Original) The method of claim 7, wherein the token is a binary string.

9. (Original) The method of claim 8, wherein the compression indicator identifies the length of the binary string.

10. (Previously Presented) The method of claim 1, further comprising:

- v. updating the data compression dictionary; and
- vi. transmitting the updated data compression dictionary to each modem of the plurality of cable modems in the DOCSIS network.

11. (Previously Presented) The method of claim 1, further comprising:

- v. transmitting the data compression dictionary to a new cable modem responsive to the new cable modem being connected to the DOCSIS network.

### **Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo who telephone number is 571 272-3966. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571 272-1915.

May 1, 2007  
JJ